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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,637	01/10/2002	Noriaki Kasahara	111653	7488

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EXAMINER

OMETZ, DAVID LOUIS

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/041,637

Applicant(s)

KASAHARA ET AL.

Examiner

David L. Ometz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 19, 20 and 22-24 is/are rejected.
- 7) ☒ Claim(s) 15-18 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. Applicant's election with traverse of Group II, claims 13-24 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that search and examination of the entire application could be made without a serious burden upon the examiner. This is not found persuasive because a thorough search of the product claims of Group II would not encompass classes 216 and 428 as would be required by the method claims of Group I. Therefore, there would be an undue burden placed upon the examiner in searching and examining both independent inventions of Groups I and II.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-12, 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group I, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 5.

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claims 13, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawata (US Pat 4860432). Kawata shows a thin film magnetic head in figure 1 that has:

As per claim 13, a thin-film magnetic head having a magnetoresistive element 11-18 and a dummy component 23-26 that are formed on a base 1, the magnetoresistive element being formed by etching a part of a film 2 for the magnetoresistive element, the film having a specific shape and being used for forming the magnetoresistive element 11-18, in its thickness direction in a specific region within the film 2 (thus forming long thin bars); and the dummy component 23-26 being formed by etching a part of a dummy film 2 in its thickness direction, the dummy film 2 having a composition (permalloy) the same as that of the film for the in magnetoresistive element and not being used for forming the magnetoresistive element (i.e. the bars 11-18 of the MR element are formed without the need for the dummy bars 23-26).

As per claim 22, a thin-film magnetic head according to claim 13, wherein the dummy component 23-26 has a shape (bars) that represents a symbol for identifying each individual thin-film magnetic head (i.e. in conjunction with the copper strips 31,32, the MR elements 11-18 can be discerned, see col. 3, lines 65 *et seq*).

As per claim 23 and claim 24, a thin-film magnetic head according to claim 13, wherein a region in which the dummy component is provided has an area that falls within a range of 0.05 to 30 percent (0.1 to 20 percent, claim 24) of the area of a surface of the thin-film magnetic head on which the magnetoresistive element and the dummy component are provided. Specifically, as can be seen in figure 1, there are a total of 14 bars (4 dummy, 2 copper, and 8 MR) equally spaced, plus significant area to the right and left of the bars, which leads to an area occupied by the dummy bars in the bar region alone as $4 \text{ bars} / 14 \text{ bars} = \text{about } 28 \text{ percent}$. Adding in the area between the bars, and the significant area to the left and right of the bars (including the area occupied by conductors 19/20) would easily reduce the total area occupied by the dummy bars to less than 20 percent.

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7. Claims 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudy et al (US Pat 6193584). Rudy et al shows a thin film magnetic head in figure 4a that includes:

As per claim 13, a thin-film magnetic head having a magnetoresistive element (GMR read sensor, col. 18, line 35) 46 and a dummy component 140 that are formed on a base, the magnetoresistive element being formed by lapping a part of a film for the magnetoresistive element, the film having a specific shape and being used for forming the magnetoresistive element, in its thickness (stripe height) direction in a specific region (the air bearing surface region) within the film; and the dummy component 140 being formed by lapping a part of a dummy film in its thickness direction, the dummy film having a composition the same as that of the film for the in magnetoresistive element (col. 18, lines 21-23) and not being used for forming the magnetoresistive element. As per the lapping instead of the claimed "etching" of the dummy and MR components, a "product by process" claim is directed to the product per se, no matter how actually made, see **In re Hirao**, 190 USPQ 15 at 17 (footnote 3, CCPA, 5/27/76); **In re Brown**, 173 USPQ 685 (CCPA 5/18/72); **In re Luck**, 177 USPQ 523 (CCPA, 4/26/73); **In re Fessmann**, 180 USPQ 324 (CCPA, 1/10/74); **In re Thorpe**, 227 USPQ 964 (CAFC, 11/21/85). The patentability of the final product in a "product by process" claim must be determined by the product itself and not the actual process and an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

As per claim 14, a thin-film magnetic head according to claim 13, wherein the GMR magnetoresistive element includes a first magnetic layer, a tunnel barrier layer and a second magnetic layer that are stacked in this order on the base. Specifically, Rudy et al discloses at col. 18, line 35 that the MR sensor can be a GMR sensor, which includes tunnel junction sensors (magnetic layer/barrier layer/magnetic layer construction) as claimed herewith.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata. Kawata shows an MR sensor with dummy portions as noted above. Kawata further discloses at col. 2, line 43 that the base 1 can be made of, for example, glass. However, Kawata does not disclose what other materials may comprise the base material, and therefore Kawata does not disclose the claimed base being made of a non-magnetic metal. The examiner takes Official Notice that the use of non-magnetic metal as a base material in MR magnetic heads is old and well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the glass base of Kawata with a non-magnetic metal base as doing this would permit the base to act as a heat sink in drawing heat away from the MR head. Additionally, the non-magnetic nature of the metal would ensure no detrimental interference with the sensitive magnetic nature of the MR sensor.

10. Claims 15-18, 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited all show magnetoresistive heads with dummy features for enabling determination of the resistance and/or stripe height of the MR head.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Ometz whose telephone number is (703) 308-1296.

The examiner can normally be reached on M-F, 6:00-3:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.



David L. Ometz
Primary Examiner
Art Unit 2653

DLO
9/30/03